Space Weather Forecast

Issued on Tuesday, 12 March 2024 at 13:18 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: Daily chance of Minor (R1) or Moderate (R2) Radio Blackouts, eventually reducing before UTC weekend.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low, with isolated Common-class X-ray activity recorded. The peak of these flares was a Common-class flare at 12/1135UTC from the largest and most complex group on the facing side. This sunspot group showed some development and spreading in its intermediate spots in the period, with penumbral area increasing. There are seven other sunspots on the disc, all of which are comparatively magnetically simple.

There were no earth directed CMEs in the past 24 hours.

Solar Wind / Geomagnetic Activity: Solar wind speeds were fairly steady at between background and slightly elevated in the past 24 hours, with the number of particles in the solar wind falling from average to below average through the period. The associated magnetic field was stable and small-scale, while the north-south component was similarly modest.

The net result of the above solar wind measures was quiet activity (Kp 0-2)

Energetic Particles / Solar Radiation: No solar radiation storms were observed, high energy (greater than 10MeV) proton flux remained at background throughout.

Four-Day Space Weather Forecast Summary

Solar Activity: There is a daily chance of Moderate-class flares from the largest sunspot region. This sunspot is expected to remain on the Earth-facing side until the end of the current UTC working week, whereupon the risk of Moderate activity should fall.

Solar Wind / Geomagnetic Activity: A CME associated with the Moderate class flare from 10 March may pass Earth as a glancing blow later in the UTC day of Wednesday 13th March or perhaps during the 14th of March, giving a peak risk of a Slight Chance of G1 for the period as a whole.

Coronal hole fast wind activity is likely to be modest in the period. All considered, activity should mostly be quiet to unsettled with a Chance of Active intervals on the 13th and 14th of March, perhaps culminating in a Slight Chance of G1 should the 10 March M7.4 CME materialise.

Energetic Particles / Solar Radiation: High energy proton flux is expected to persist at background or close to background levels, with a very slight chance of S1 Minor Solar Radiation Storms, with the main risk from the largest sunspot region.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	10	10	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	30	30	30	20
Very Active	R3 to R5 X	No	5	5	5	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	10	10
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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